

ABSTRACT OF THE DISCLOSURE

5 A force measuring apparatus uses a flexible cantilever beam engaging a tool at one end and a handle at the other end so that a force, normal to the beam, can be applied and delivered to the tool. Mounted in spaced apart longitudinal alignment on each side of the beam, is a tensioned wire, and a vibratory modulator in electromagnetic communication with the wire causing the wire to vibrate. A vibratory sensor is also positioned on each side of the beam in sensory communication with each respective wire. An electrical circuit is functionally
10 enabled for receiving electrical signals from the vibratory sensor, the signals corresponding to a vibratory frequency of each of the wires, and for controlling the vibratory modulators to maintain the wires at resonant vibratory frequency, and for measuring a differential vibratory frequency between the wires, and finally, for calculating the magnitude of a force applied to the beam in such direction that one of the wires is incrementally further tensioned and the
15 other of the wires is incrementally relaxed. The force magnitude is displayed on the apparatus.